

The Defense Systems Acquisition Management Process Chart

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I. INTRODUCTION

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The Defense Systems Acquisition Management Process Chart is a training aid for Defense Systems Management College (DSMC) Courses and is designed to serve as a pictorial roadmap of functional activities throughout the Defense Systems Acquisition Life Cycle. This chart is based on the policies in Department of Defense (DoD) 5000 Series documents. These consist of DoD Directive (DoDD) 5000.1, as modified by change 1, *Defense Acquisition*, and DoD Regulation 5000.2-R, *Mandatory Procedures for Major Defense Acquisition Program (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs*, as modified by changes 1-4 (inclusive). The *Defense Acquisition Deskbook* describes discretionary information and best practices in implementing defense acquisition. This chart is **not** a substitute for knowing these references.

Acquisition of a system is a process that begins with the identification of a need; encompasses the activities of design, test, manufacture, operations and support; may involve modifications; and ends with the disposal/recycling/demilitarization of that system. Upgrade (or modification) programs also follow the acquisition life cycle that includes the activities of design, test, manufacture, installation and checkout, and operations and support.

The primary objective of defense acquisition, stated in DoDD 5000.1, is to acquire quality products that satisfy the needs of the operational user with measurable improvements to mission accomplishment, in a timely manner, at a fair and reasonable price. Several important themes, promoted in the latest versions of these acquisition documents and in ongoing Acquisition Reform

efforts, are teamwork, tailoring, empowerment, cost as an independent variable (CAIV), commercial products, and best practices. Additional goals imposed on the DoD acquisition process include political, ethical, and economic goals.

To implement these varied themes and goals, many unique requirements, laws, and regulations are imposed on defense acquisition that still burden program managers in pursuing the efficiencies inherent in pure commercial acquisition practice.

DoD components shall first try to satisfy mission needs through nonmateriel solutions, such as changes in doctrine or tactics. If this will not provide the most cost-effective solution over the system's life cycle, the use or modification of systems or equipment that the component already owns is generally more cost effective than acquiring new materiel. If existing U.S. military systems or other on-hand materiel cannot be economically used or modified to meet the operational requirement, an acquisition program may be justified.

This chart provides the basic information needed to understand the Acquisition Life-Cycle Process. For additional information, please use the reference materials indicated above or contact the department point of contact (POC) associated with each section of the chart. Department POCs can detail further their respective section on the chart.

There is no single, approved taxonomy of the functional disciplines and sub-disciplines that, taken together, constitute defense systems acquisition. Acquisition career fields have been established under the auspices of DoDD 5000.52 for both military and civilian members of the Defense Acquisition Workforce.

II. ACQUISITION POLICY

DSMC POC: Acquisition Policy Department; FD-AP; (703) 805-5144

The Defense Systems Acquisition Management Process is structured by DoD Regulation 5000.2-R into discrete, logical phases separated by major decision points (called milestones) to provide the basis for comprehensive management and progressive decision making. The number of phases and decision points shall be tailored to meet the specific needs of individual programs.

The documents applicable to a particular program at a specific milestone shall be determined individually for each program through the IPT process

and approved by the Milestone Decision Authority (MDA). Figures 1 and 2 contain a list of documents that may be applied.

Acquisition Strategy. A plan that serves as a roadmap for program execution from program initiation through post production support. ACAT I and IA Programs must contain information on: Open Systems Objectives, Sources, Risk Management, CAIV, Contract Approach, Management Approach, Environmental Considerations, Safety and Health Considerations, Modeling and Simulation, Source of Support, Warranties, and Government Property in possession of Contractors.

FIGURE 1. INFORMATION FOR MILESTONE REVIEWS - ACAT I AND ACAT IA PROGRAMS

Information (MDA may waive non-statutory requirements.)	Milestone				Reference	
	0	I	II	III	DoD 5000.2-R	Other
Acquisition Program Baseline (APB) ¹		X	X	X	Part 3.2.2	10 USC 2435
Acquisition Strategy (11 elements)		X	X	X	Part 3.3	
Analysis of Alternatives (AOA) ²		X	2	2	Part 2.4	
Acquisition Decision Memorandum (ADM)	X	X	X	X	Part 5.2.1	
Affordability Assessment		X	X	X	Part 2.5.2	DoDD 5000.1
Beyond Low Rate Initial Production (LRIP) Report ³				X	Part 6.3.3	10 USC 2399
C4I Support Plan		X	X	X	Part 2.2.1	CJCSI 3170.01
Component Cost Analysis (CCA)		X	X	X	Part 5.6	DoDD 5000.4
Consideration of Technological Issues	X	X	X	X	Part 1.4	
Cost Analysis Requirements Description (CARD)		X	X	X	Part 3.5.1	DoDD 5000.4
Exit Criteria	X	X	X	X	Part 3.2.3	
Full Funding of DAB & MAISRC Programs		X	X	X	Part 2.5.1	
Independent Estimate of Life-Cycle Cost		X	X	X	Part 3.5.1	10 USC 2434
Interoperability Certification (C3I Systems)				X		DoDI 4630.8
Live Fire Test & Evaluation Waiver Certification ³			X		Part 3.4.9	10 USC 2366
Live Fire Test & Evaluation (LFT&E) Report ³				X	Part 6.3.2	10 USC 2366
Legality of Weapons Under International Law			X	X		DoDD 5000.1
Low Rate Initial Production (LRIP) Quantities ³			X		Part 1.4.4.1	10 USC 2400
Manpower Estimate ³			X	X	Part 3.5.2	10 USC 2434
Mission Need Statement (MNS)	X				Part 2.3	CJCSI 3170.01
Operational Requirements Document (ORD)		X	X	X	Part 2.3	CJCSI 3170.01
Overarching IPT (OIPT) Leader's Report ⁴	X	X	X	X	Part 5.4.1	
OIPT Staff Assessments ⁴	X	X	X	X	Part 5.4.1	
Program Office Estimate (POE) (life-cycle costs)		X	X	X	Part 3.5.1	DoDD 5000.4
Provisions for Evaluation of Post Deployment Support		X	X	X	Part 1.5.4	
Requirement for Program Under DoD Strategic Plan	X	X	X	X	Part 1.5	
System Threat Assessment ³		X	X	X	Part 2.2	
Test & Evaluation Master Plan (TEMP)		X	X	X	Part 3.4.11	10 USC 2399
Test Results (DT&E, OT&E, LFT&E, etc.)			X	X	Part 6.3.1	10 USC 139

¹ Including CAIV based objectives. ² May be updated for MS II; unlikely to be required at Milestone III.

³ Normally not applicable to ACAT IA. ⁴ ACAT ID and ACAT IAM programs only.

FIGURE 2. INFORMATION FOR MILESTONE REVIEWS - ACAT II AND III* PROGRAMS

Information Element (MDA may waive non-statutory requirements.)	Milestone				Reference	
	0	I	II	III	Primary	Other/Related
Acquisition Program Baseline (APB) ¹		X	X	X	DoDD 5000.1, D.3.g	DoD 5000.2-R, 3.2.2
Acquisition Strategy		X	X	X	DoD 5000.2-R, 3.3	
Affordability Assessment		X	X	X	DoDD 5000.1, D.1.a	DoD 5000.2-R, 2.5
C4I Support Plan		X	X	X	DoD 5000.2-R, 2.2.1	CJCSI 3170.01
Environmental Safety & Health (ESH) Assessment ²		X	X	X	DoD 5000.2-R, 3.3.7	42 USC 4321-47
Interoperability Certification (C3I Systems)				X	DoDI 4630.8	
Legality of Weapons Under International Law			X	X	DoDD 5000.1, D.2.j	
Life-Cycle Cost Estimate		X	X	X	DoDD 5000.1, D.1.g	DoD 5000.2-R, 3.5.1
Live Fire Test & Evaluation Waiver Certification ^{3,4}			X		DoD 5000.2-R, 3.4.9	10 USC 2366
Live Fire Test & Evaluation Report ^{3,4}				X	DoD 5000.2-R, 6.3.2	10 USC 2366
Low Rate Initial Production (LRIP) Quantities ^{2,3,5}			X		DoD 5000.2-R, 1.4.4.1	
Mission Need Statement (MNS)	X				CJCSI 3170.01	DoD 5000.2-R, 2.3
Operational Requirements Document (ORD)		X	X	X	CJCSI 3170.01	DoD 5000.2-R, 2.3
Risk Assessment ²		X	X	X	DoDD 5000.1, D.1.d	
Staff Assessments	X	X	X	X	DoDD 5000.1, D.2.g	
Test & Evaluation Master Plan (TEMP) ⁶		X	X	X	DoD 5000.2-R, 3.4.11	10 USC 2399
Test Results (DT/OT/LFT&E) ⁶			X	X	DoD 5000.2-R, 6.3.1	10 USC 139

MDA's for ACAT II & III* programs have wide latitude and broad authority over the content and format of many (but not all) of these information elements:

1. Including Cost As an Independent Variable (CAIV) based objectives.
2. May be included in PM's acquisition strategy.
3. Normally not required for AIS programs.
4. Programs subject to live fire T&E legislation.
5. ACAT II only; however, it is DoD policy to limit LRIP quantities for all ACATs.
6. Programs on OSD T&E Oversight List.

*Army, Navy, and Marine Corps also have an ACAT IV category. The information on this chart may also be tailored for those programs.

III. PROGRAM MANAGEMENT AND LEADERSHIP

DSMC POC: Program Management and Leadership Department; (FD-PML; (703) 805-4985

Fundamental change in the DoD acquisition culture is underway and requires individuals and organizations to change from a hierarchical decision-making process to one where decisions are made across organizational structures by multidisciplinary teams known as Integrated Product Teams (IPTs). Successful PMs must be leaders who can create a vision for their program, translate this into concrete missions, break these down into critical success factors (goals), and nurture and develop (via empowerment and teamwork) the IPT's to successfully execute acquisition programs. Under DoDD 5000.1 and DoD Regulation 5000.2-R, the preferred management technique for use by a PM is known as Integrated Process and Product Development (IPPD). The goals of IPPD are to integrate all acquisition activities starting with requirements definition through production, fielding/deployment, and operational support in order to optimize the design, manufacturing, business, and supportability processes. IPPD is an expansion of concurrent engineering, and it simultaneously integrates all essential acquisition activities through the use of IPTs.

The primary program management activities are as follows:

- 1.) **Planning:** The first program management planning activity is the development of the acquisition strategy, which lays out how the program will accomplish its objectives in terms of, among others, cost, schedule, performance, risk, and contracting activities. For Milestone decisions, it is included as part of a single document (to the maximum extent practicable). Each program's acquisition strategy is tailored to meet the specific requirements and circumstances of the program. Possible strategies include modifications of existing equipment, use of commercial/nondevelopmental item (NDI), technology demonstration and advanced prototyping, use of preplanned product improvements (P3I), and evolutionary development.
- 2.) **Organizing & Staffing:** The establishment, organization, and staff-

ing of the program office should be a direct outgrowth of the task analysis, which supports the program's acquisition strategy. As the program evolves, the program office organization and staffing should also evolve to support the changing task requirements and acquisition environment.

- 3.) **Controlling:** The control system consists of standards against which progress can be measured; a feedback mechanism that provides information to a decision maker; and a means to make corrections either to the actions underway or to the standards. Examples of standards used in the systems acquisition process include the acquisition program baseline (APB), exit criteria, program schedule, program budget, specifications, plans, and test criteria. Examples of feedback mechanisms for program control, oversight, and risk management include Joint Requirements Oversight Council (JROC) and Defense Acquisition Board (DAB) reviews; selected acquisition reports (SAR) and Defense Acquisition Executive Summary (DAES) reports; the Integrated Baseline Review (IBR); the Earned Value Management (EVM) Reports; Contract Funds Status Report (CFSR) charts; the configuration management (CM) process; independent life-cycle cost (LCC) estimates; program and technical reviews; and developmental and operational test and evaluation (D/OT&E).
- 4.) **Leading:** Effective leadership is the key to program success. It involves developing an organization's mission, vision, and goals, and clearly articulating a set of core values. Dominant leadership roles in program management include strategy setting, consensus/team building, systems integration, and change management. For successful teams, factors such as empowerment, clear purpose, open communication, adequate resources, and a team-behavioral environment are critical.

IV. EARNED VALUE MANAGEMENT

DSMC POC: Earned Value Management Department; (FD-EV); (703) 805-3769

Earned Value Management: The use of an integrated management system to coordinate work scope, schedule, and cost goals and objectively measure progress toward those goals.

Earned Value Management Systems (EVMS): Management standards (for significant dollar threshold contracts) used to evaluate an organization's integrated management systems.

Cost Performance Report (CPR): An objective summary of contract status that includes the following:

Budgeted Cost of Work Scheduled (BCWS) - Value of work scheduled in budget terms

Budgeted Cost of Work Performed (BCWP) - Value of work completed in budget terms

Actual Cost of Work Performed (ACWP) - Cost of work completed

Cost/Schedule Status Report (C/SSR): A reasonably objective summary of contract status in terms of BCWS, BCWP, and ACWP.

Work Breakdown Structure: A product-oriented family tree composed of hardware, software, services, and data, which comprise the entire work effort under a program.

Integrated Baseline Review (IBR): A joint Government/Contractor assessment of the performance measurement baseline (PMB).

V. CONTRACT MANAGEMENT

DSMC POC: Contract Management Department; (FD-CM); (703) 805-3442

Contract Management is the process of systematically planning, organizing, executing, and controlling the mutually binding legal relationship obligating the seller to furnish supplies and/or services and the buyer to pay for them.

Contract: The document that definitizes the government/industry agreement.

A **Draft RFP** and **Presolicitation Conference** are used to ensure that the requirements are understood by industry and that feedback is provided to the government.

Cost Type Contract: A family of cost-reimbursement type contracts, where the government pays the cost (subject to specified limitations) and the contractor provides “best efforts.” This type may provide for payment of a fee that may consist of an award fee, incentive fee, or fixed fee.

Engineering Change Proposal (ECP): A formal document used to make engineering changes to configuration management baselines in an existing contract

Firm Fixed Price Contract: A family of fixed-price type contracts where the government pays a price, subject to specified provisions, and the contractor delivers a product or service. This type may provide for payment of incentives or other sharing arrangements.

RFP, SOW/SOO, SPEC, CDRL (Request for Proposal, Statement of Work/ Statement of Objectives, Specification, Contract Data Requirements List): The documents used in soliciting contracts for each phase of work. The RFP sets forth the needs, the SOW/SOO is the formal statement of these needs as requirements for contractual effort (what the contractor will do), the specification sets forth the technical requirements (what the system will do), and the CDRL definitizes the data deliverables.

VI. FUNDS MANAGEMENT

DSMC POC: Funds Management Department; (FD-FM); (703) 805-3755

Government Budget Plan: The generic title for an internal government document that plans the long-range budgeting strategy for the life of a given program.

Planning, Programming and Budgeting System (PPBS): The PPBS is a time-driven resource allocation process within DoD to request funding for all operations, including weapon system development and acquisition. It is essential to convert each program’s event-driven acquisition strategy and phasing into the PPBS’s calendar-driven funding profiles to assure the appropriate amount and type of funds are available to execute the desired program.

Planning phase - The Defense Planning Guidance (DPG) sets forth broad policy objectives and military strategy. The DPG guides the development of the Program Objectives Memorandum (POM).

Programming phase - The POM and the Program Decision Memorandum (PDM) are the keystone documents completed in this phase. The POM provides the services’ strategies to meet the DoD objectives outlined in the DPG. The POM is reviewed by staff officers of the Secretary of Defense, the Commanders in Chief of unified and specified commands, and the Joint Chiefs of Staff. The reviews highlight major program issues and alternatives. The Deputy Secretary of Defense reviews the POM and the issues and decides on the appropriate course of action. The decisions are documented in the PDM.

Budgeting phase - The completion of the Budget Estimate Submission (BES). The BES is the POM documentation updated for the decisions outlined in the PDM. The BES is reviewed by the OSD Comptroller and the Office of Management and Budget (OMB) for execution feasibility. Funding changes due to execution issues are identified in Program Budget Decisions (PBDs). The updated BES is forwarded to OMB and incorporated into the President’s Budget. The President’s Budget is due to Congress no later than the first Monday in February.

Enactment - The process that Congress uses to develop and pass the Authorization and Appropriation Bills. In the enactment process, the DoD has an opportunity to work with Congress and defend the President’s budget.

Types of Funds:

6.1 Basic Research includes all scientific study and experimentation efforts directed toward increasing knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs.

6.2 Applied Research includes all military applicability studies and experimentation efforts directed toward nonspecific weapon systems.

6.3a Advanced Technology Development includes all efforts directed toward projects that have moved into the development of hardware for test. The prime result for these efforts is proof of design concept.

6.3b Demonstration and Validation includes all efforts of projects in the PDRR acquisition phase.

6.4 Engineering Manufacturing Development (EMD): Includes all development efforts in the EMD acquisition phase.

6.5 Management and Support includes support of organizations, people, and facilities required for general research and development activities not funded under the Working Capital Funds concept. Test ranges, maintenance and support of laboratories, operations and maintenance of test aircraft and ships, and study and analyses in support of Research and Development programs funded by operations and maintenance are included.

Cost Estimating: A realistic appraisal of the level of cost most likely to be realized. The main estimation methods are analogy, parametric, engineering, and extrapolation from actuals.

Life-Cycle Cost (LCC): The total cost to the government of acquisition and ownership of the system over its full life. It includes the cost of development, acquisition, support, and (where applicable) disposal. The USD(A&T) has defined Defense Systems Total Ownership Cost (TOC) as Life-Cycle Cost.

VII. SYSTEMS ENGINEERING (SE)

DSMC POC: Systems Engineering Department; (FD-SE); (703) 805-5258

The function that controls the total system development effort for the purpose of achieving an optimum balance of all system elements is SE. The SE process is designed to translate operational needs and/or requirements into a system solution that includes the design, manufacturing, T&E, and support processes and products. SE establishes a proper balance among performance, risk, cost and schedule, employing a top-down iterative process of requirements analysis, functional analysis and allocation, design synthesis and verification, and system analysis and control.

A. Configuration Management (CM) Baselines -

- 1.) **Functional Baseline** - The technical portion of the program requirements (system performance specification) that provides the basis for contracting and controlling the system design.
- 2.) **Allocated Baseline** - Defines the performance requirements for each configuration item of the system (item performance specifications). It is normally established at PDR (preferably by the contractor).
- 3.) **Product Baseline** - Established by the detailed design documentation for each configuration item (item detail specifications) and includes the process baseline and materiel baseline.

B. Preplanned Product Improvement (P3I) - A deliberate decision delaying incorporation of a system capability but providing growth allocations for the capability.

C. Technical Management Plan (TMP) - The TMP defines the contractor's plan for the conduct and management of the fully integrated effort necessary to satisfy the general and detailed requirements as implemented by the Request for Proposal (RFP) or contract schedule, statement of work/objectives, and specifications. (Best Practices)

D. Design Reviews and Audits

- 1.) **ASR - Alternative Systems Review** - A formal review conducted to demonstrate the preferred system concept(s).
- 2.) **SRR - System Requirements Review** - A formal, system-level review conducted to ensure that system requirements have been completely and properly identified and that there is a mutual understanding between the government and contractor.
- 3.) **SFR - System Functional Review** - A formal review of the conceptual design of the system to establish its capability to satisfy requirements. It establishes the functional baseline.

- 4.) **SSR - Software Specification Review** - A formal review of requirements and interface specifications for computer software configuration items.
- 5.) **PDR - Preliminary Design Review** - A formal review which confirms that the preliminary design logically follows the SFR findings and meets the requirements. It normally results in approval to begin detail design.
- 6.) **CDR - Critical Design Review** - A formal review conducted to evaluate the completeness of the design and its interfaces.
- 7.) **TRR - Test Readiness Review** - A formal review of the contractors' readiness to begin testing computer software configuration items.
- 8.) **FCA - Functional Configuration Audit** - A formal review conducted to verify that all subsystems can perform all of their required design functions in accordance with their functional and allocated configuration baselines.
- 9.) **SVR - System Verification Review** - A formal review conducted to verify that the actual item (which represents the production configuration) complies with the performance specification.
- 10.) **PCA - Physical Configuration Audit** - A formal review that establishes the product baseline as reflected in an early production configuration item.

E. System/Product Definition - This is the natural result of the threat/opportunity-driven Requirements Generation System and the common thread (or area of common interest) among all acquisition disciplines.

- 1.) **Mission Need Statement (MNS)** - A formal document, expressed in broad operational terms and prepared in accordance with CJCS 13170.01, that documents deficiencies in current capabilities and opportunities to provide new capabilities.
- 2.) **Program Definition** - The process of translating broadly stated mission needs into a set of operational requirements from which specific performance specifications are derived.
- 3.) **Operational Requirements Document (ORD)** - A formatted statement, which is prepared by the user or user's representative, containing operational performance parameters for the proposed concept/system that defines the system capabilities needed to satisfy the mission need. It is prepared at each milestone, usually beginning with Milestone I.
- 4.) **System Threat Assessment & Projections** - Prepared by a collaboration among the intelligence, requirements generation, and acquisition management communities to support program initiation (usually Milestone I). It is maintained in a current and approved or validated status throughout the acquisition process.

VIII. SOFTWARE ACQUISITION MANAGEMENT

DSMC POC: Software Management Department; (FD-SM); (703) 805-3788

Major, modern DoD systems are almost always software-intensive, in which software is the largest segment in any system development cost, system development risk, system functionality, or development time criteria. DoDD 5000.1 and DoD 5000.2-R combine and integrate policy requirements and management guidance for weapons systems software, C3I systems, and Automated Information Systems (AISs).

- Development and refinement of an Operational Concept Document (OCD), a System/Subsystem Specification (SSS), and Software Requirements Specifications (SRS).
- Establishment of the basis for the system's *Software Architecture*.
- Selection and tailoring of an appropriate software development standard and acquisition strategy.
- Initial identification of Software Items (SIs).

Phase II: EMD: EMD translates the most promising design into a mature, producible design. Depending on the type of software-intensive system being developed, key Phase II activities typically could include:

SOFTWARE ACQUISITION MANAGEMENT CONTINUED

An AIS is a combination of computer hardware and software, data, or telecommunications that performs functions such as collecting, processing, transmitting, and displaying information.

Pre-Phase 0: Determining Mission Needs: DoD 5000.2-R requires confirmation that requirements defined in DoDD 8000.1 (*Defense Information Management Program*) have been met for ACAT IA programs.

Phase 0: CE: Broad system concepts are defined. Depending on the type of software-intensive system being developed, other key Phase 0 activities typically could include:

- Assessing Information Operations risks IAW DoDD 3600.1.
- Assessing information assurance requirements.
- Addressing compatibility, interoperability, and integration goals for Command, Control, Communications, Computer, and Intelligence (C4I) Systems IAW DoDD 4630.5, DoDI 4630.8 & CJCSI 6212.01A. Note that all systems that interface with C4I systems also require a C4I Support Plan.
- Planning for software maintenance [Post Deployment Software Support, (PDSS)]. This planning is normally accomplished by a Computer Resources IPT (CR-IPT), which may prepare a Computer Resources Life Cycle Management Plan (CRLCMP) or its equivalent.
- Refinement of ORD requirements related to software (support and integration requirements).

Phase I: PDDR: Initial software requirements are refined. Other key Phase I activities typically could include:

- Refinement of the system's *Software Architecture*. Mandatory guidance is included in the Joint Technical Architecture (JTA).
- Generation of a Software Development Plan (SDP) by a developer.
- Use of mandatory DoD standard data elements (DoDD 8320.1).
- A widely-used "Best Practice" in assessing the maturity of a developer's process is the Software Capability Evaluation (SCE), an on-site assessment of software process maturity.
- Decision on use of an appropriate programming language.
- Risk-based software metrics, based on service policies and OSD's Practical Software Measurement (PSM) initiative and refined from previous life cycle phases, are used to gain visibility into EMD software development activities.
- Key developer-produced outputs of the Software Development Process can include a Software Transition Plan (STrP), used to transition the software to a support environment and a Software Installation Plan (SIP), used to assist in Phase III fielding activities.
- A Software Product Specification (SPS), produced by the developer, is normally used to establish the software product baseline.

Phase III: Production, Fielding/Deployment & Operational Support: Post Deployment Software Support (PDSS) activities, by far the largest cost component of the software life cycle, are initiated for the operational support requirement of this phase IAW with the chosen software support concept.

IX. TEST AND EVALUATION (T&E)

DSMC POC: Test and Evaluation Department; (FD-TE); (703) 805-5290

T&E is a process by which a system or components are compared against requirements and specifications through testing. The results are evaluated to assess progress of design, performance, supportability, and the like.

Beyond Low Rate Initial Production (BLRIP) Report: Completed by the Director, Operational Test and Evaluation (DOT&E) to assess the Initial Operational Test and Evaluation (IOT&E) for a developing system for the Milestone III decision. A copy is provided to Congress.

Combined Developmental and Operational Testing (DT/OT): Combining DT and OT is encouraged to achieve time and cost savings. The combined approach shall not compromise either DT or OT objectives. A final independent phase of IOT&E shall still be required for ACAT I and II programs for BLRIP decisions.

Developmental Test and Evaluation (DT&E): A technical test conducted to provide data on the achievability of critical system performance parameters. This testing is performed on components, subsystems, and system-level configurations of hardware and software.

DT&E Report: The developing agency shall prepare a DT&E Report and formally certify that the system is ready for the next dedicated phase of OT&E.

Follow-On OT&E (FOT&E): OT&E needed during and after the production phase to refine estimates from the IOT&E, to evaluate system changes, and to reevaluate the system as it continues to mature in the field. FOT&E may evaluate system performance against new threats or in new environments.

Full-Up Live Fire T&E (LFT&E): A system-level live fire test of an ACAT I or II covered system, major munitions, or missile program, or a product improvement to one of these systems configured for use in combat. Required before going BLRIP.

Initial Operational T&E (IOT&E): All OT&E conducted on production or production representative articles to support the decision to proceed BLRIP. It is conducted to provide a valid estimate of expected system operational effectiveness and suitability for ACAT I and II systems.

Lethality T&E: Testing the ability of a munitions to cause damage that will cause the loss or a degradation in the ability of a target system to complete its designated missions.

LFTE Report: Completed by the DOT&E for ACAT I and II systems that have been subjected to a full-up live fire test prior to MS III. Usually included in the DOT&E report of the IOT&E (BLRIP report) when sent to Congress.

Modification T&E: Testing done after Milestone III to evaluate modifications/upgrades/improvements to the system.

TEST AND EVALUATION (T&E) *CONTINUED*

Operational Assessment: An evaluation of operational effectiveness and suitability made by an independent operational test agency, with user support as required, on other than production systems.

Operational T&E (OT&E): The field test, under realistic combat conditions, of any item (or key component of), weapons, equipment, or munitions for the purpose of determining the effectiveness and suitability for use in combat by typical military users, and the evaluation of the results of such test. Required for ACAT I and II programs.

Production Acceptance T&E (PAT&E): T&E of production items to demonstrate that items procured fulfill requirements and specifications of the procuring contract or agreements.

Production Qualification T&E: A technical test conducted to ensure the effectiveness of the manufacturing process, equipment, and procedures. These tests are conducted on a number of samples taken at random

from the first production lot and are repeated if the design or process is changed significantly.

Qualification Testing: Testing that verifies the contractor's design and manufacturing process and provides a performance parameter baseline for subsequent tests. (Best Practice)

Survivability T&E: Testing the capability of a system and crew to avoid or withstand a manmade hostile environment without suffering an abortive impairment of its ability to accomplish its designated mission.

Test and Evaluation Master Plan (TEMP): The testing strategy in the TEMP for ACAT I and IA programs shall focus on the overall structure, major elements, and objectives of the test and evaluation program that is consistent with the acquisition strategy.

Vulnerability T&E: Testing a system or component to determine if it suffers definite degradation as a result of having been subjected to a certain level of effects in an unnatural hostile environment. A subset of survivability.

X. MANUFACTURING AND PRODUCTION

DSMC POC: Manufacturing Management Department; (FD-MM); (703) 805-3763

Manufacturing (also referred to as Production) is the conversion of raw materials into products and/or components through a series of manufacturing procedures and processes. Manufacturing Management is the technique of planning, organizing, directing, controlling, and integrating the use of people, money, materials, equipment, and facilities to accomplish the manufacturing task economically.

Assess and Resolve Production Risk: Identify and demonstrate required advances beyond the current capability.

Assess Production Risks: Estimate probabilities of success or failure in manufacturing.

Complete Manufacturing Technology Development: Manufacturing technology is developed through a phased approach from definition to demonstration. This represents the final demonstration of the integrated manufacturing scheme.

Establish Design to Goals: Establish design parameters for the system.

Estimate Manufacturing Costs: Develop resource estimates for manufacturing of various system alternatives.

Evaluate Manufacturing Technology (MANTECH) Needs: Discriminate manufacturing capabilities versus requirements to define new facilities and equipment needs.

Evaluate Production Feasibility: Assess the likelihood that a system design concept can be produced using existing manufacturing technology.

Final Manufacturing Plan: The refined and formalized initial manufacturing plan. This plan is not required in support of milestone decisions and shall not be used as milestone documentation or as periodic reports.

Industrial Capability Assessment (ICA): A legal requirement (10 USC 2440) at each milestone to analyze the industrial capability to design, develop, produce, support, and (if appropriate) restart the program.

Influence the Design Process (Through Producibility Engineering and Planning): Application of design and analysis techniques to reduce the potential manufacturing burden.

LRIP: Low rate of output used to prove manufacturing technology and facilities at the beginning of production.

Preliminary Manufacturing Plan: The description of a method for employing the facilities, tooling, and personnel resources to produce the design. The Manufacturing Plan belongs to the PM and is used to manage program execution throughout the life cycle of the program. This plan is not required in support of milestone decisions and shall not be used as milestone documentation or as periodic reports.

Producibility Assessments: Assessments of the producibility aspects of proposed design alternatives/approaches.

Phased Producibility Assessments: Discretionary assessments of a program to determine if the design of the product and the manufacturing process are ready for the production phase. These should be conducted in conjunction with other design reviews.

Production Strategy: The approach to obtaining the total quantity of a system at some rate for some cost.

Second Source/Breakout Decisions: Execution of acquisition strategy to establish two producers for the part or system and/or strategy to convert some parts or systems from contractor furnished to government furnished.

Spare Parts Production: Arrange for purchase of spare parts or a portion of normal production runs.

Value engineering (VE): A program to allow for the sharing of cost savings derived from improvements in the manufacturing processes.

XI. ACQUISITION LOGISTICS

DSMC POC: Logistics Management Department; (FD-LM): (703) 805-2497

Acquisition Logistics is a multifunctional technical and management discipline associated with the design, development, test, production, fielding, sustainment, and improvement/modification of cost-effective systems that achieve the user's peacetime and wartime readiness and sustainability requirements. The principal goals/objectives of acquisition logistics are:

- To influence system design
- To concurrently field the system and its necessary support infrastructure, and
- To improve the system and its support.

Support Elements, such as the following, have traditionally been included under Acquisition Logistics:

- 1.) Maintenance Planning
- 2.) Manpower and Personnel
- 3.) Supply Support
- 4.) Support Equipment
- 5.) Technical Data
- 6.) Training and Training Support
- 7.) Computer Resources Support
- 8.) Facilities
- 9.) Packaging, Handling, Storage and Transportation
- 10.) System/Design Interface

Support Plan (SP) (also known as Integrated Logistics Support Plan (ILSP) or Acquisition Logistics Support Plan (ALSP)) - Best Practice in logistics generally involves preparing and maintaining a formal or informal document for support of the fielded system. The SP belongs to the PM and is used to manage program execution throughout the life cycle of the program. This plan is not required in support of milestone decisions and shall not be used as milestone documentation or as periodic reports. It may be prepared as a stand-alone document or as an annex to other documents such as the TMP.

Deployment Plan - The plan to provide for a smooth introduction of the system/equipment to the user. This plan is not required in support of milestone decisions and shall not be used as milestone documentation or as periodic reports. This plan may be prepared as a "stand-alone" document or an annex to the Support Plan.

Post Production Support Plan (PPSP) - A plan to ensure continued systems management and support activities to ensure continued attainment of system readiness objectives with economical logistic support after cessation of production of the end-item (system or equipment). This plan is not required in support of milestone decisions and shall not be used as milestone documentation or as periodic reports. This plan may be prepared as a "stand-alone" document or an annex to the Support Plan.

Supportability Analysis - An analytical tool, conducted as part of the SE process, to determine how to most cost effectively support the system over its entire life cycle and form the basis for related design requirements included in the specifications. See MIL-HDBK-502 and MIL-PRF-49506.

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